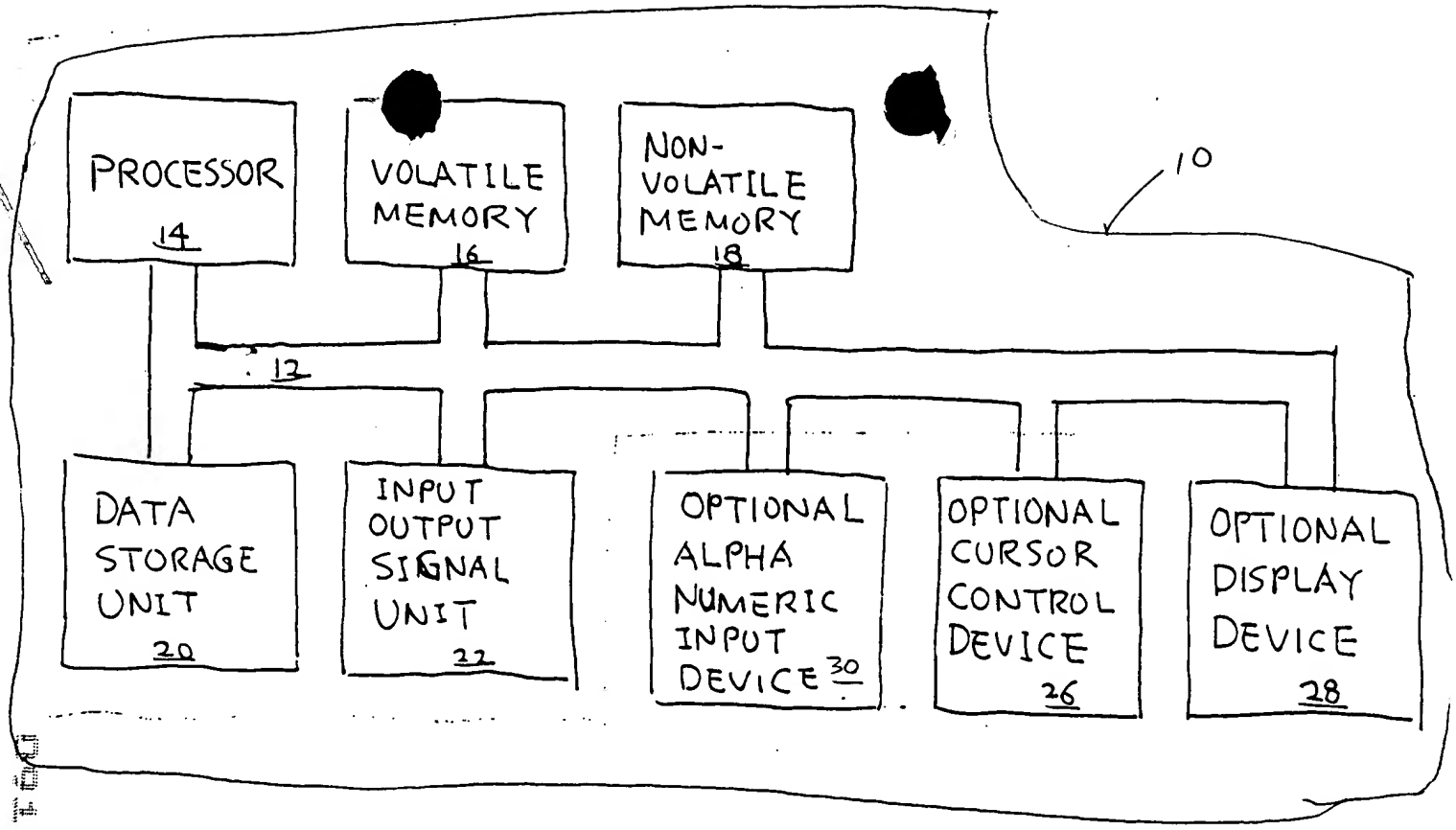

PROCESSOR
14
VOLATILE MEMORY
16
NON-VOLATILE MEMORY
18
10
12
DATA STORAGE UNIT
20
INPUT OUTPUT SIGNAL UNIT
22
OPTIONAL ALPHA NUMERIC INPUT DEVICE
30
OPTIONAL CURSOR CONTROL DEVICE
26
OPTIONAL DISPLAY DEVICE
28

Figure 1

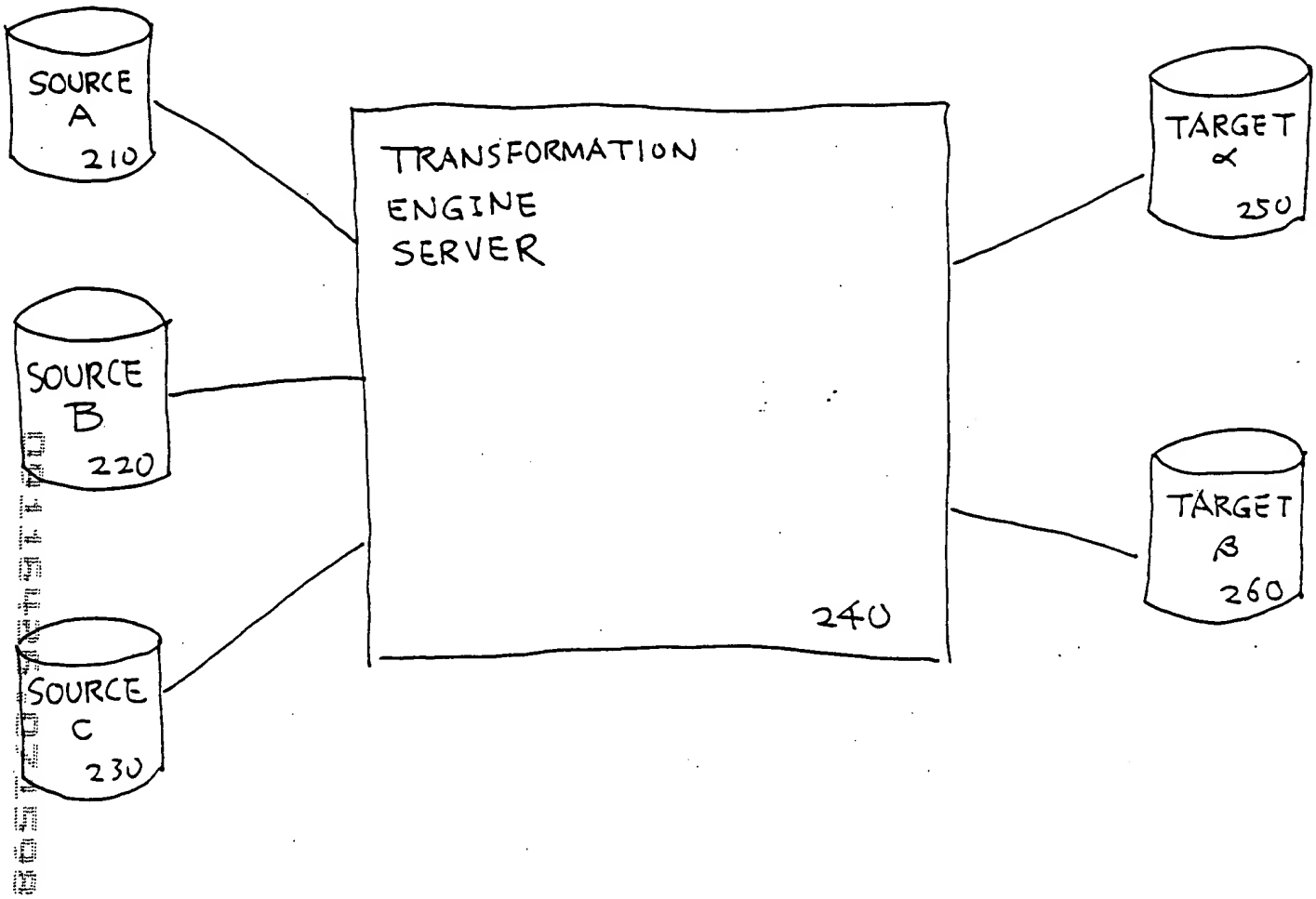
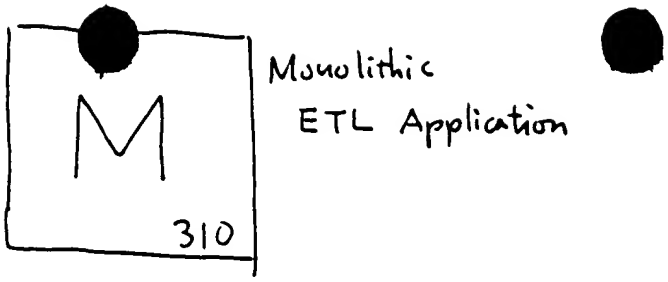

SOURCE A 210
SOURCE B 220
SOURCE C 230
TRANSFORMATION ENGINE SERVER
240
TARGET α 250
TARGET β 260

Figure 2

Figure 3A



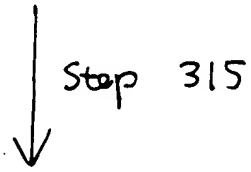


Figure 3B

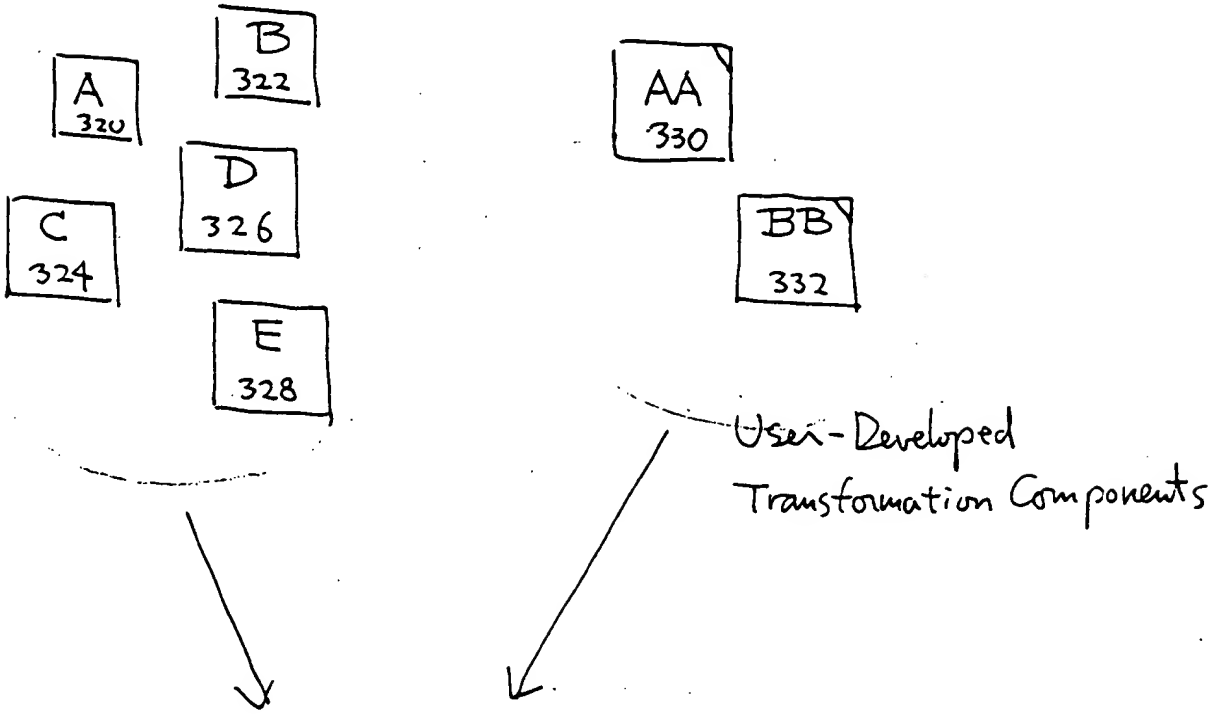
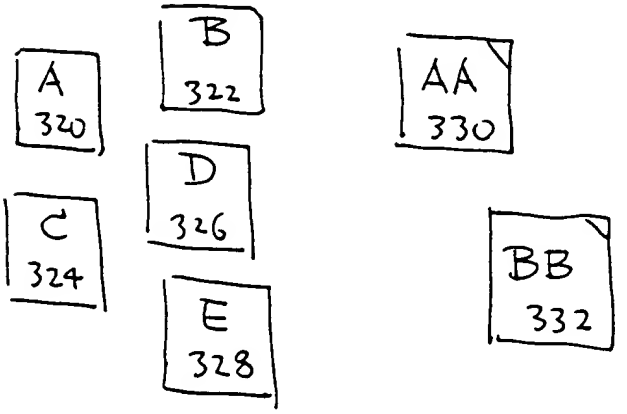


Figure 3C



Extensible Set of Transformation Components

350

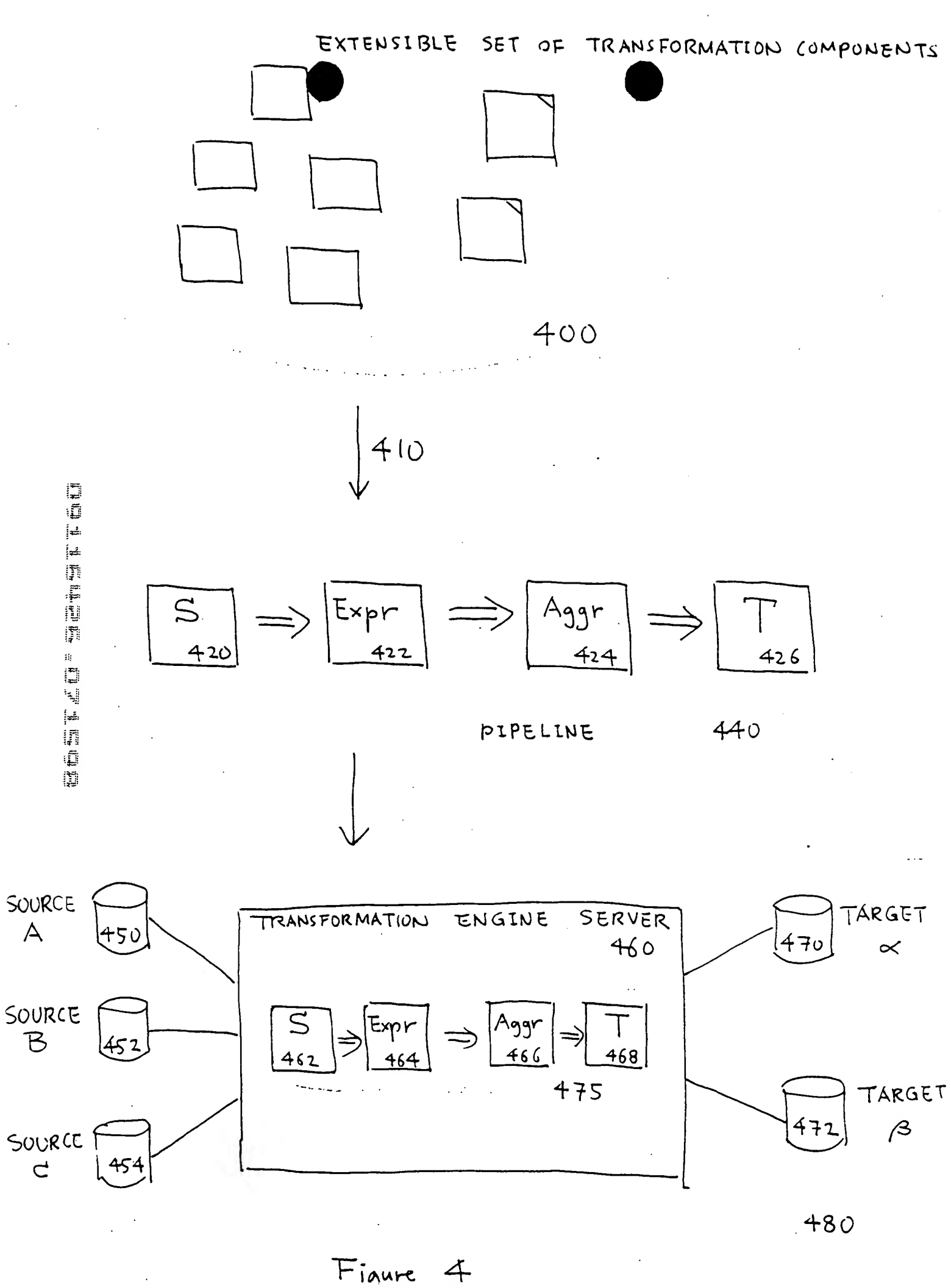

EXTENSIBLE SET OF TRANSFORMATION COMPONENTS
400
410
S
420
Expr
422
Aggr
424
T
426
PIPELINE
440
SOURCE A
450
SOURCE B
452
SOURCE C
454
TRANSFORMATION ENGINE SERVER
460
S
462
Expr
464
Aggr
466
T
468
475
TARGET α
470
TARGET β
472
480

Figure 4

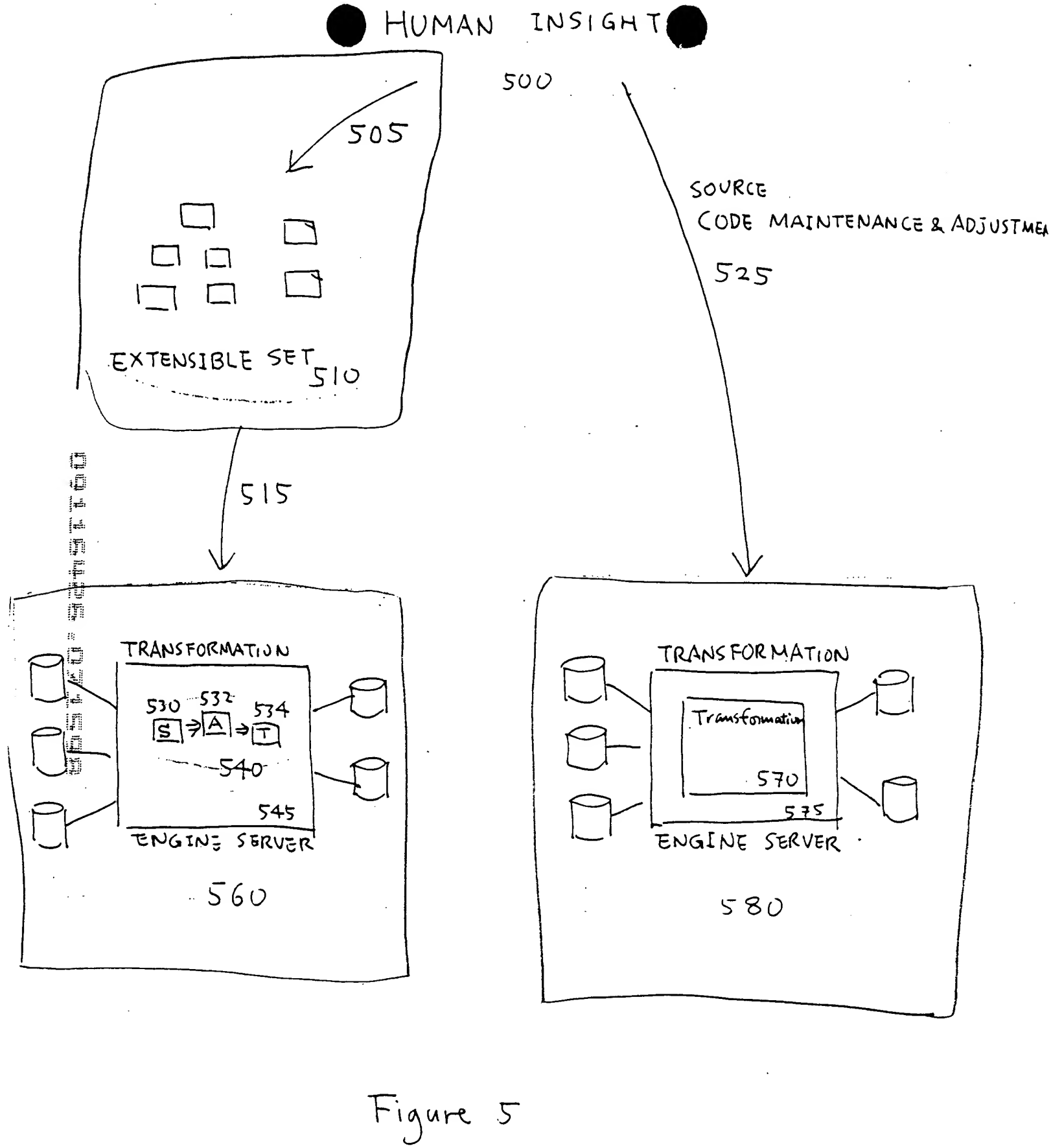

HUMAN INSIGHT
500
505
EXTENSIBLE SET
510
SOURCE
CODE MAINTENANCE & ADJUSTMEA
525
515
TRANSFORMATION
530
532
534
S
A
T
540
545
ENGINE SERVER
560
TRANSFORMATION
Transformation
570
575
ENGINE SERVER
580

Figure 5

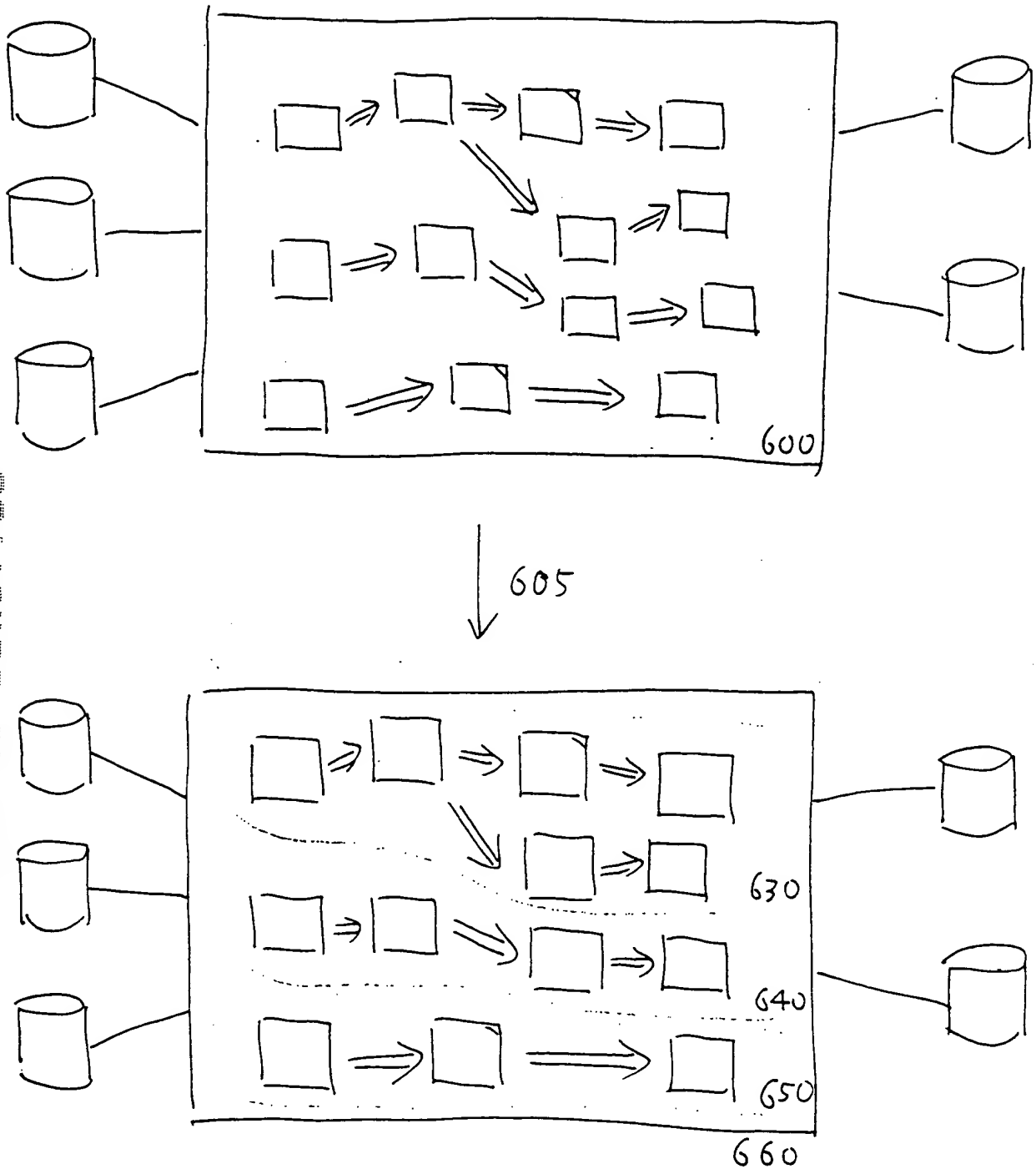
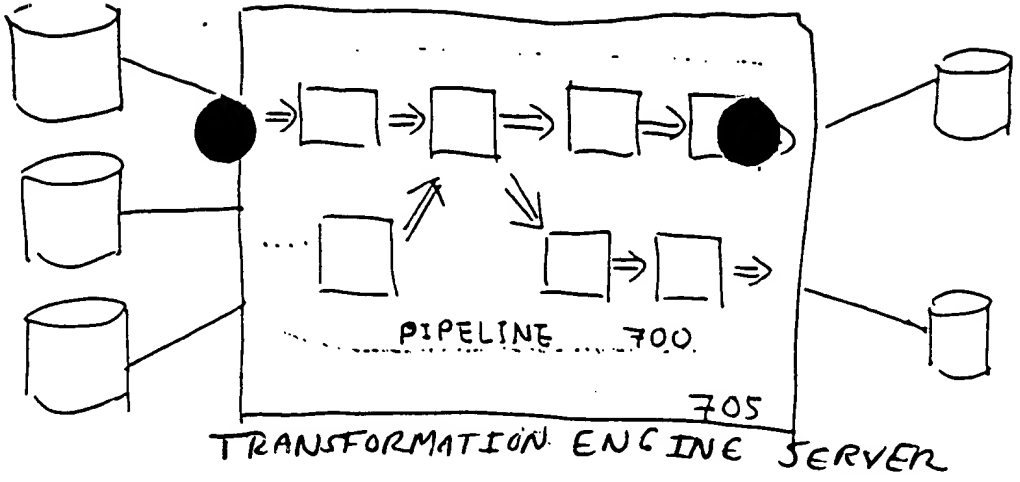
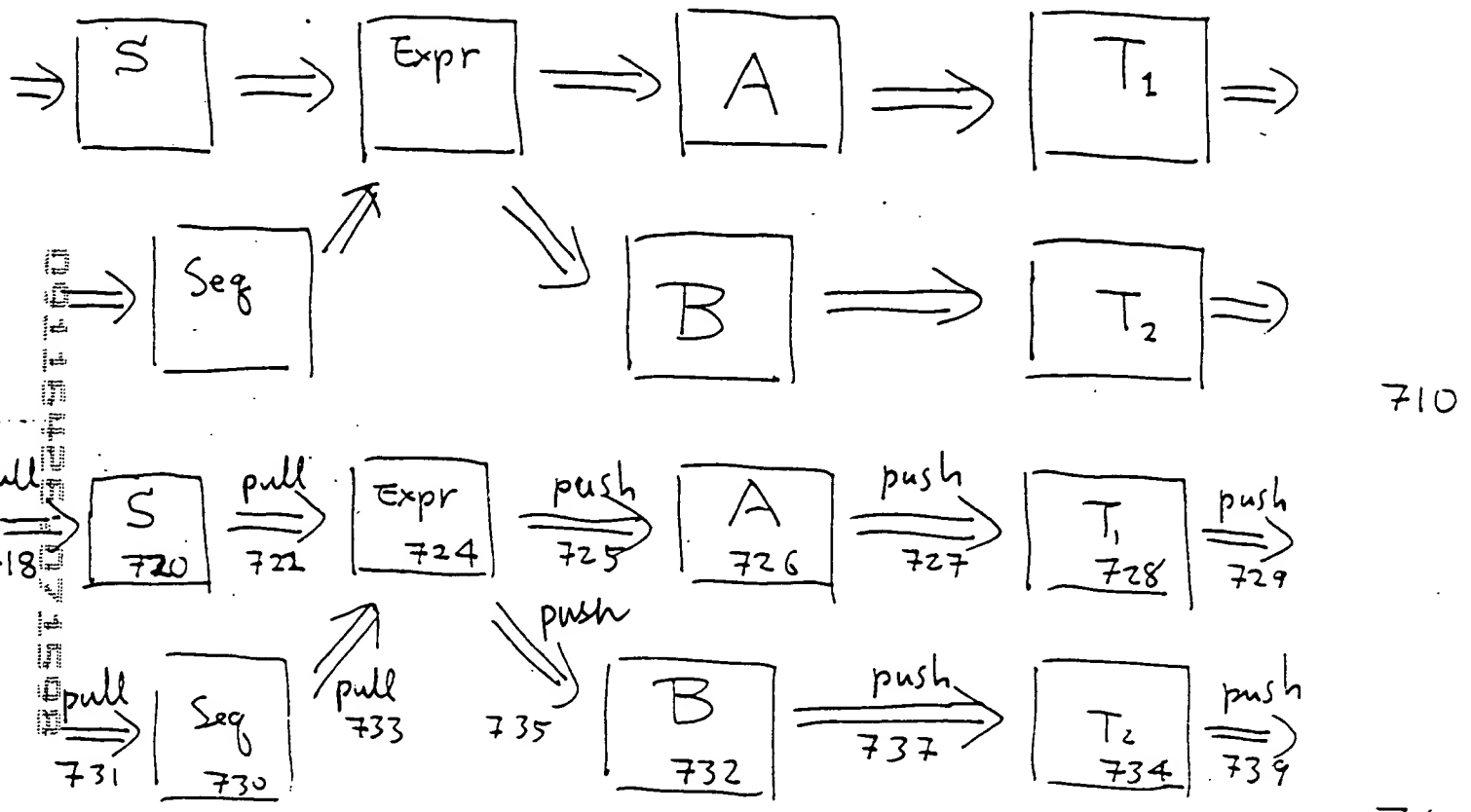


Figure 6


PIPELINE 700
705
TRANSFORMATION ENGINE SERVER


S
Expr
A
T1
Seq
B
T2
710

pull
718
S
720
pull
721
Expr
724
push
725
A
726
push
727
T1
728
push
729
pull
731
Seq
730
pull
733
push
735
B
732
push
737
T2
734
push
739
740

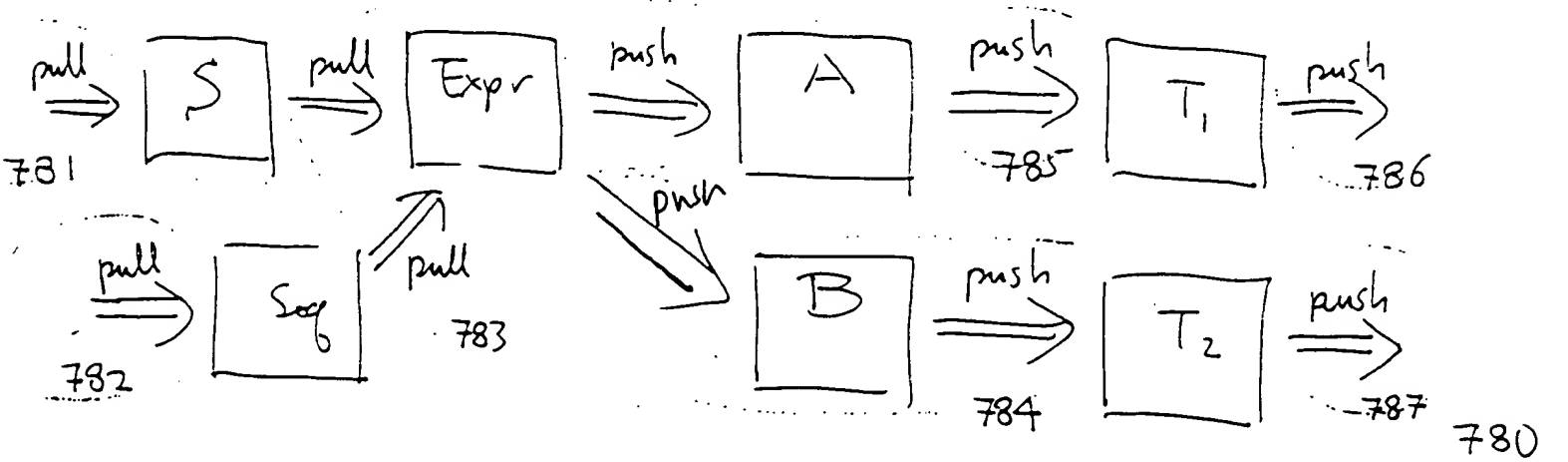

pull
781
S
pull
Expr
push
A
push
785
T1
push
786
pull
782
Seq
pull
783
push
B
push
784
T2
push
787
780

Figure 7

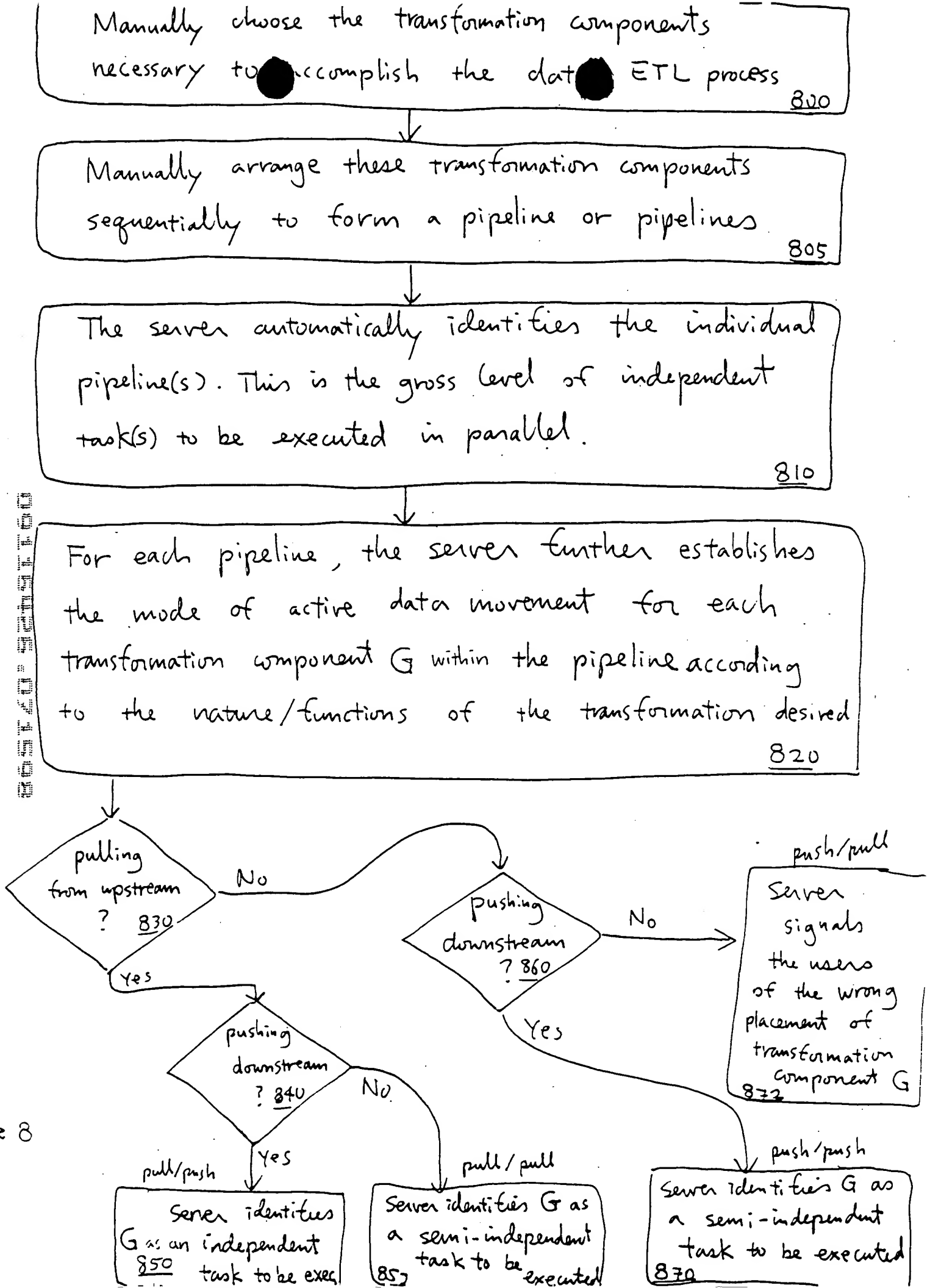
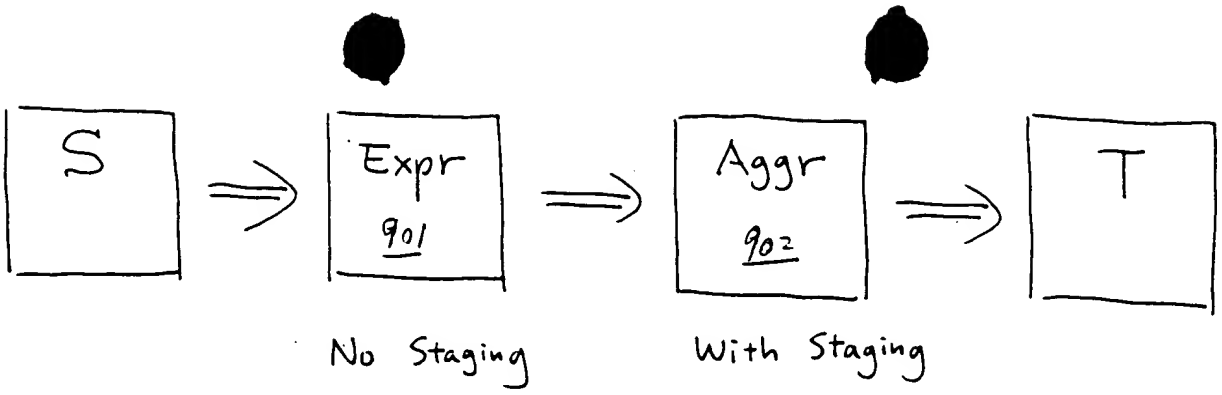

Manually choose the transformation components necessary to accomplish the data ETL process
820
Manually arrange these transformation components sequentially to form a pipeline or pipelines
805
The server automatically identifies the individual pipeline(s). This is the gross level of independent task(s) to be executed in parallel.
810
For each pipeline, the server further establishes the mode of active data movement for each transformation component G within the pipeline according to the nature/functions of the transformation desired
820
pulling from upstream ? 830
No
Yes
pushing downstream ? 860
No
Yes
push/pull
Server signals the users of the wrong placement of transformation component G
872
pushing downstream ? 840
No
Yes
pull/push
Server identifies G as an independent task to be exec
850
pull/pull
Server identifies G as a semi-independent task to be executed
857
push/push
Server identifies G as a semi-independent task to be executed
870

Figure 8


S
Expr
901
Aggr
902
T
No Staging
With Staging

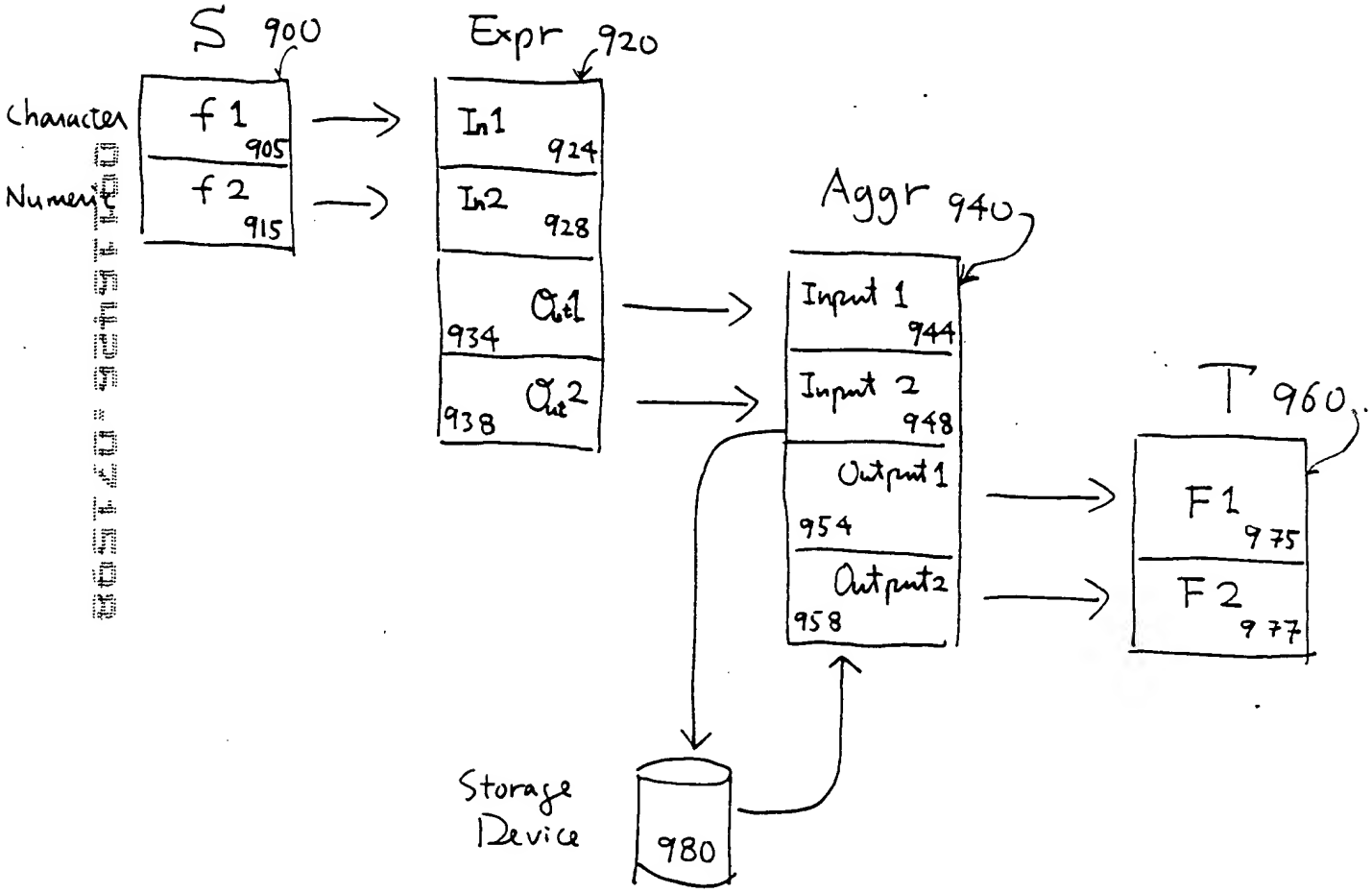

S 900
Expr 920
Character
Numeric
f 1
905
f 2
915
In1
924
In2
928
Out1
934
Out2
938
Aggr 940
Input 1
944
Input 2
948
Output1
954
Output2
958
T 960
F1
975
F2
977
Storage Device
980

Figure 9